REMARKS

The applicants appreciate the Examiner's thorough examination of the application and request reexamination and reconsideration of the application in view of the following remarks.

The Examiner objects to Figure 5, stating that it should be designated by a legend such as "PRIOR ART".

Fig. 5 has been amended as required by the Examiner. Accordingly, the applicants request that the Examiner withdraw the objection to Fig. 5. Replacement Page 3/4 is included herewith.

The Examiner rejects claims 1-24 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,506,269 to *Greene* in view of U.S. Patent No. 5,360,503 to *Coffy*. The Examiner states in pertinent part that *Greene* shows a method of producing a radome comprising at least one rigid panel with an outside skin comprised of polyarylate, and that no polyester-polyarylate fiber construction appears to be suggested. The Examiner further states, however, that *Coffy* teaches a composition of polyester-polyarylate fibers in a rigid matrix material and having remarkable transparency to EM waves, and thus excellent for radomes.

As discussed below, each of *Greene* and *Coffy* teach away from the applicants' claimed invention, and one skilled in the art at the time of the applicants' invention would not have combined the cited references because the cited references teach away from each other.

The Cited References Are Not Properly Combinable
Because They Teach Away From One Another

Greene teaches a radome C-sandwich wall capable of withstanding continuous rain impact at a constant speed of 500 mph for a minimum of one hour without showing harmful effects. *Greene* also teaches that "the ability to sustain rain impact and aerodynamic loads imposed on the supersonic aircraft are two important mechanical parameters in designing thermoplastic [radome] walls 13 and 15" of *Greene*'s alleged invention. *Greene* further teaches that with prior art materials, after the core buckles once, the compressive strength essentially becomes zero and "soft spots" develop. *Greene* teaches that compressive buckling tests are performed on the radome walls to determine greater buckling resistance over prior art construction and materials. See *Greene* column 2, line 66 through column 3, line 3; column 3, lines 57-60; column 1, lines 46-48; column 4, lines 65-68.

Coffy teaches a thermoplastic composite product consisting exclusively of liquid crystal thermoplastic polymers. A first liquid crystal thermoplastic polymer LCP is in the form of fibers and has a given melting point. A second liquid crystal thermoplastic polymer has a melting point below that of the first LCP. *Coffy* further teaches that the fibers of the first LCP and the second LCP are arranged so as to form a fabric. The fabric obtained is highly flexible and deformable. See *Coffy* column 2, lines 35-42; column 4, lines 9-17.

To summarize, *Greene* emphasizes the necessity of greater buckling resistance via a radome C-sandwich wall comprised of thermoplastic polycarbonate material, and the disadvantages of buckling, while *Coffy* teaches a fabric that is highly flexible and

deformable. Thus, it is clear that use of *Coffy*'s flexible and deformable fabric in *Greene* would destroy the function of *Greene*'s radome C-sandwich wall for which buckling, i.e. deformation, constitutes a disadvantage.

Conversely, the applicants submit that contrary to *Coffy*, *Greene* teaches away from fiber reinforcement. *Greene* notes that the thermoplastic materials considered for use in *Greene*'s invention "offer several advantages over conventional glass reinforced radomes using epoxy resins in aircraft applications". *Greene* is otherwise silent as to reinforcement or fiber reinforcement. However, *Greene* instead teaches a radome including polycarbonate skins – evidently without fibers – with inside and outside cores between inside and outside skins, in order to withstand aerodynamic loads and to provide rain impact resistance at speed. See, e.g. *Greene* column 3, lines 3-6 and column 4, lines 42-47.

> A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of the invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field ... Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one 'to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher'." In re Kotzab, 217 F.3d 1365, 1369, 55 USPQ 2d 1313, 1316 (Fed. Cir. 2000), quoting W.L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983).

The applicants submit that it is only by using impermissible hindsight that the applicants' claimed invention can be deemed unpatentable over the combination of references that teach away from each other.

Additionally, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant. In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ 2d 1313, 1316 (Fed. Cir. 2000).

The law is further clear that the teaching of the desirability of combining the references must not come from the applicant's invention. "There must be a reason or suggestion in the art for selecting the procedure used, *other* than the knowledge learned from the applicants' disclosure." See In re Dow Chemical Company, 837 F.2d 469,473, 5 USPQ 2d 1529, 1532 (Fed. Cir. 1989) (with emphasis added).

Additionally, the Examiner can satisfy the burden of showing obviousness of the combination *only* by showing some *objective teaching* in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. In re Sang Su Lee, 277 F.3d 1338, 61 USPQ 2d 1430, 1433-44 (Fed. Cir. 2002).

The applicants submit that the Examiner has not, by objective teaching, without benefit of the applicants' claimed invention, established obviousness or that the cited references teach of the desirability of making the specific combination of the applicants' claimed invention.

Accordingly, the applicants' independent claims 1, 12, 13, 22 and 24 are in condition for allowance. Claims 2-11 depend directly or indirectly from claim 1. Claims 14-21 depend directly or indirectly from claim 13. Claim 23 depends from claim 22.

Thus, dependent claims 2-11, 14-21, and 23 are also in condition for allowance for at least the foregoing reasons.

The Cited References Teach Away From The Applicants' Claimed Invention

Coffy teaches away from the applicants' claimed invention. *Coffy* teaches the use of reinforcing fibers and matrix of same chemical nature or natures that are very similar to one another, to avoid interface problems between fibers and a matrix having different physicochemical natures. Among other examples, *Coffy* specifically mentions fibers of glass, and a matrix of thermosetting resin, among known composite materials upon which *Coffy* seeks to improve. See *Coffy* column 1, lines 15-23 and lines 30-35; and column 1 line 65 through column 2, line 9. *Coffy* also teaches a matrix that is solid, but because *Coffy*'s product is a highly flexible and deformable fabric, the applicant submits that in contrast to the applicants' claimed invention, *Coffy* does not teach, *inter alia*, a rigid panel including a composite material having polyester-polyarylate fibers in a rigid resin matrix material.

Furthermore, in accordance with the applicants' claimed invention, the rigid resin matrix material may be epoxy, polyester, polybutadiene, cyanate ester, vinyl ester, or a blend of at least two of the foregoing materials. In accordance with the teachings of *Coffy*, these matrix materials would not be sufficiently the same or similar physicochemical natures as the polyester-polyarylate fibers. As taught by *Coffy*, the fiber and matrix must be essentially the same to avoid so-called interface problems between them. See, e.g. *Coffy* column 6, lines 27-39.

Thus, *Coffy* teaches away the applicants' claimed invention.

The applicants further submit that *Greene* also teaches away from the applicants' claimed invention. As noted above, *Greene* states that the thermoplastic materials considered for use in *Greene*'s invention "offer several advantages over conventional glass reinforced radomes using epoxy resins in aircraft applications". *Greene* is otherwise silent as to reinforcement or fiber reinforcement, but *Greene* further teaches polycarbonate skins without fibers. See, e.g. *Greene* column 3, lines 3-6 and column 4, lines 42-47. Moreover, *Greene* states that several thermoplastic materials, including "polyaralyate" were considered, but "out of this exercise, general purpose unfilled polycarbonate was chosen as being able to meet electrical, rain impact and the dynamic load requirement". See *Greene* column 4, lines 6-16.

Thus, the applicants submit that it is error to find obviousness based on either *Coffy* or *Greene* or their combination, because *Coffy* and *Greene* both teach away from the applicants' claimed invention as a whole.

One cannot use hindsight to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. In re Fine, 837 F.2d 1071, 1075, 5 USPQ 1596, 1600 (Fed. Cir. 1988).

Also, as Judge Learned Hand cogently stated:

> All machines are made up of the same elements; rods, pawls, pitmans, journals, toggles, gears, cams, and the like, all acting their parts as they always do and always must. All compositions are made of the same substances, retaining their fixed chemical properties. But the elements are capable of an infinity of permutations and the selection of that group which proves serviceable to a given need may require a high degree of originality. It is that act of selection which is the invention ...

See B.G. Corp. v. Walter Kidde & Co., 79 F.2d 20, 22, 26 USPQ 288, 289 (2d

Cir. 1935).

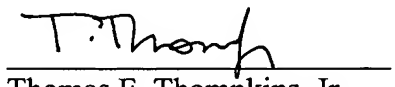
Accordingly, the applicants' claims 1-24 are not unpatentable over the cited references, and thus are in condition for allowance for at least the forgoing reasons.

CONCLUSION

Each of the Examiner's rejections has been addressed or traversed. Accordingly, it is respectfully submitted that claims 1-24 are in condition for allowance. Early and favorable action is respectfully requested.

If for any reason this Response is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned or his associates, collect in Waltham, Massachusetts at (781) 890-5678.

Respectfully submitted,



Thomas E. Thompkins, Jr.
Reg. No. 47,136

AMENDMENTS TO THE DRAWINGS/FIGURES

Replacement Page 3/4 showing a change to Fig. 5 is attached, now showing a legend "PRIOR ART".